

May 21, 2001

Minutes of the 5/21/01 TUP PRB Meeting.

The Technology and Upgrades PRB was held on May 21, 2001 to discuss and disposition the DAS CDR RFAs for closure. The following RFAs were approved for closure:

RFA 451/023-1 was approved for closure.  
RFA 451/023-2 was approved for closure.  
RFA 451/023-4 was approved for closure.  
RFA 451/023-5 was approved for closure.  
RFA 451/023-6 was approved for closure.  
RFA 451/023-8 was approved for closure.  
RFA 451/023-9 was approved for closure.  
RFA 451/023-10 was approved for closure.  
RFA 451/023-11 was approved for closure.  
RFA 451/023-12 was approved for closure.  
RFA 451/023-13 was approved for closure.  
RFA 451/023-14 was approved for closure.

RFA 451/023-07 was approved for closure with the following note: Details contained in DAS Ops Concept document.

RFA 451/023-03 still pending.

The RFAs copies and closure information were sent out on 5/10/01 with the review and agenda package. If you need copies of the RFAs or have other questions or comments, please call the TUP Systems Management Office at 301-286-8088.

Karen L. Snyder/ACS GSG  
450/MSPO Systems Management Office

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Karen L. Snyder/ACS Government Solutions Group  
453/Systems Management Support Office

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review	<b>2. RFA No.</b> 453/023-01	<b>3. Review Date</b> 02/22/01	
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>The current design of the DAS data archival system calls for a new data file to be opened when the receiver achieves lock and closed when the receiver loses lock. In an easily conceivable scenario, a stationary or slow moving customer could maintain lock for many hours. Such an event running at the max DAS data rate of 150Kbps on a single channel would produce data files containing over 65MBytes per hour. Even lower data rate events lasting several hours could produce very large data files.</p> <p>Retrieval of any data within the file would require retransmission of the entire file, which would become extremely cumbersome as the file sizes become large.</p> <p>It is recommended that files be limited either to a max file size or duration. A compromise size or duration could be chosen that would effectively support users at any of the data rates supported by DAS.</p>			
<b>6. Originator:</b> Cliff Baxter	<b>Organization:</b> CSOC	<b>Telephone:</b> 505-527-7189	
<b>7. Response:</b> The Avtec PTP system supports logging of binary data to hard disk using three recording modes: fixed, dynamic, and sequence. <ul style="list-style-type: none"> <li>In fixed mode, the PTP recorder logs data until "fileSize" bytes have been recorded.</li> <li>In dynamic mode, the recorder logs data until disabled or out of disk space.</li> <li>In sequence mode, the recorder logs "fileSize" bytes to fileName, and then it creates a new file named "filename" plus a sequence digit. Sequence mode continues creating files and logging data until disabled or out of disk space. The recorder can log raw frame data or frame data with time stamp and quality annotation.</li> </ul> <p>The initial design called for the use of the dynamic mode of recording where data would be recorded to a file until either a loss of lock or end of an event. In order to limit file size the PTP will be configured to record data in a combined dynamic spooler / sequence mode with "fileSize" set to a DAS pre-determined value (e.g. 5 Mbytes). This will permit storing the processed telemetry in a series of files for each EventID.</p>			
<b>8. Response By:</b> Walter W. Kearns	<b>Organization:</b> ITT-AES, DAS PM	<b>Telephone:</b> (703)498-8113	<b>Date Prepared:</b> 03/30/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/12/01
<b>10. Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11. Comments:</b>			
		Original signed	5/21/01
		_____ <b>Chairperson</b>	_____ <b>Date</b>

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review	<b>2. RFA No.</b> 453/023-02	<b>3. Review Date</b> 02/22/01	
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>The current DAS design does not provide IF sample ports at the IBU, Demod or anywhere in between. The ability to sample the IF output of any IBU, non-intrusively, either during a real time service or offline, is critical for the troubleshooting of system and customer anomalies not detected by built in self test hardware and software.</p> <p>An IF sample port needs to be added to either the IBU or DMU or the ability to configure the IF Switch from either the DCON or DASCON LCM needs to be added. If the IF switch is used to provide the sample port, adding a sample port connection to the output of any IBU must be possible during an ongoing service without impacting the service. The sample port(s) should be accessible from the front of the DAS racks.</p>			
<b>6. Originator:</b> Cliff Baxter	<b>Organization:</b> CSOC	<b>Telephone:</b> 505-527-7189	
<b>7. Response:</b> The current design does not include IF sample ports. However, any unused output (DMU side) port can be used to sample any input (IBU side) IF signal without interfering with an ongoing service. An additional output card will be installed in switch position 57-64 to make sample ports available. The output port card (8 ports) in the eighth card slot of the IF switch is unneeded if another DMG is not installed. Since DAS need only support 50 users, only 7 DMGs (56 DMUs) are actually required. To make the sample ports available at the front, modifications to the rack design will be needed to route the signals from the back of the IF switch to a panel with up to 8 connectors. This can be accomplished after IOC by CSOC.			
<b>8. Response By:</b> Thomas A. Gitlin	<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301)286-9257	<b>Date Prepared:</b> 04/05/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/12/01
<b>10. Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11. Comments:</b>			
		Original signed	05/22/01
		Chairperson	Date

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-04	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)  Many of the messages exchanged between DAS and SWSI include a PN code parameter. Unless DAS is intrinsically incapable of providing service to users with non-NASA PN codes, these messages should be expanded to include the PN code library parameter. This will allow for the possibility of ESA and NASDA users. Refer to the SHO header format in 530-ICD-NCC-FDF/WSC.  I'd recommend these message format changes even if DAS, itself, would be initially limited to use of NASA PN codes.			
<b>6. Originator:</b> Tom Williams		<b>Organization:</b> CSC	<b>Telephone:</b> (301)805-3370
<b>7. Response:</b> DAS will incorporate the full range of NASA, ESA, and NASDA PN codes by entering the octal values of these codes through the A and C registers as specified in the DAS/SWSI ICD.			
<b>8. Response By:</b> Walter W. Kearns		<b>Organization:</b> ITT-AES, DAS PM	<b>Telephone:</b> (703)498-8113  <b>Date Prepared:</b> 03/30/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/06/01
<b>10: Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11: Comments:</b>			
		Original signed	05/22/01
		<b>Chairperson</b>	<b>Date</b>

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review	<b>2. RFA No.</b> 453/023-05	<b>3. Review Date</b> 02/22/01	
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>The current DAS-to-SWSI Alert message format requires each DAS alert to be customer-specific. However, the CDR discussion of alerts (page 3-24) seemed to include conditions that would affect many, but possibly not all, customers. For such conditions, will DAS generate a separate alert message for each affected customer?</p> <p>If not, a change will be needed in the ICD and in the SWSI requirements. Upon receipt of a non-customer-specific DAS alert, SWSI would have to present it to all customers. SWSI would not be able to determine which customers were affected and which were not.</p>			
<b>6. Originator:</b> Tom Williams	<b>Organization:</b> CSC	<b>Telephone:</b> (301)805-3370	
<b>7. Response:</b> <p>As specified in the DAS/SWSI ICD, DAS sends Alert messages as shown in Table 3.4-1 to unique customer -specified Spacecraft Identification Codes (SIC). One additional provision is described in paragraph 3.4.1 of the ICD, which allows DAS to broadcast Alert messages through SWSI to all DAS customers using the SIC code "0000".</p> <p>There are currently no provisions to define Alert messages for small groups of customers without adding complexity to DASCON or SWSI.</p>			
<b>8. Response By:</b> Thomas A. Gitlin	<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301)268-9257	<b>Date Prepared:</b> 04/05/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/07/01
<b>10: Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
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REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-06	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>Need explanation on database recovery and fault tolerance feature concerning scheduling and DQM information collected every second if database is corrupted.</p> <p>Given: CDR page 9-44 list of all types of information that will populate the database; status messages are collected once every second; database is backed up on a daily basis.</p> <p>If the database is corrupted or disc fails between running backups (i.e., status collected for 22 hours) on that day, how would DAS recover this information (not from last backup CD)? Does DAS shadow log file on hard disc and on CD-R? PTP is part of DAS. Where would DQM information get stored and for how long?</p>			
<b>6. Originator:</b> Diem (Richard) Nguyen		<b>Organization:</b> CSOC	<b>Telephone:</b> 301-805-3194
<b>7. Response:</b> <p>DAS does not maintain DQM data except to the extent that the data is developed in the PTP processing and written to the various encapsulation headers. DASCON contains two mirrored RAID Systems: one for the operating system software (Linux and WSC user authorization files) and a second for the DAS system (software and database). The PTPs contain two mirrored RAID systems: one for the operating software and a second for user data. The DAS database backup/recovery scheme:</p> <ol style="list-style-type: none"> <li>1. DASCON contains scripts to back-up the database on a daily basis. Scripts are maintained in the DAS system RAID. The backups of the database are written to the CD-RW without shutting down the system.</li> <li>2. Archive Log mode is enabled. This separately saves all the transactions that occurred in the system since the last backup to the DAS operating system RAID. If the database RAID goes down in its entirety, then when it is repaired (i.e., new drives installed) its contents up to the start of the current day can be recovered from the daily backup. Any changes to the database since the backup can be recovered from the transaction log.</li> <li>3. DASCON contains scripts to write the transaction data to file recover the database from the backup database and redo logs if and when needed.</li> <li>4. PTPs maintain the user data including the encapsulation headers (which includes DQM developed by the PTPs), if any, for the authorized storage duration (max 30-days) after which the data, including encapsulation headers are purged without backup. Note the purpose of the PTP storage is prolonged line-outage protection, <u>not</u> as a data archive.</li> </ol>			
<b>8. Response By:</b> Thomas A. Gitlin		<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301) 268-9257
		<b>Date Prepared:</b> 04/06/01	
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/10/01
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		<hr/> Chairperson	<hr/> Date

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-07	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>The dedicated vs. non-dedicated customer concept is totally inflexible.</p> <p>A customer's use of DAS must be either 100% dedicated or 100% non-dedicated. However, discussion in the CDR suggested scenarios in which dedicated customers may wish to have some non-dedicated support and others in which non-dedicated customers may wish to have some dedicated support.</p> <p>A more flexible approach could be based on dedicated/non-dedicated service types, which would allow customers to use a mixture of dedicated and non-dedicated resource allocation requests.</p> <p>For SWSI, the impact of this change would be to add a parameter to the SSC format and to include this parameter in messages and displays. SWSI wouldn't need to make any logical decisions based on this parameter. The DAS impact would depend on the details of how DAS keeps track of whether a resource is allocated on a dedicated or non-dedicated basis. If this becomes a direct attribute of the allocated resource rather than always being indirectly determined by reference to the customer who requested the resource allocation, then the DAS change might be primarily limited to reading a parameter from the Resource Allocation Request rather than from the DAS database.</p>			
<b>6. Originator:</b> Tom Williams		<b>Organization:</b> CSC	<b>Telephone:</b> (301)805-3370
<b>7. Response:</b> DAS was designed to support only dedicated or non-dedicated customers. Customer types are determined through their approved Project Service Level Agreement that allocates DAS resources to support each customer. Approaches combining dedicated/non-dedicated service types for a single customer would complicate policy agreements, overall system costs, and potentially complicate the DAS service accounting system.			
<b>8. Response By:</b> Thomas A. Gitlin		<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301)286-9257
<b>8. Response By:</b> Thomas A. Gitlin			<b>Date Prepared:</b> 04/05/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/06/01
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		<b>Chairperson</b>	<b>Date</b>

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-08	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
Document the risk of being a non-dedicated user (like flying standby). User will really not know of loss of resources to support until 2 minutes before event. User could lose telemetry while commanding s/c if bumped during operations. Will bumping be last in, first out?			
<b>6. Originator:</b> Ted Ackerson		<b>Organization:</b> Code 303	<b>Telephone:</b> (301)286-4247
<b>7. Response:</b> <p>The risk to a non-dedicated user will be documented in their Project Service Level Agreement. During typical DAS operations, non-dedicated users will know 96 hours in advance of service whether or not DAS scheduled their requested supports. If their service was rejected, non-dedicated users can use SWSI to identify available alternative times for their service needs.</p> <p>Once scheduled, only three events will cause non-dedicated users to be bumped:</p> <ol style="list-style-type: none"> <li>1. Equipment failure requiring the use of equipment planned for their service to be used for a dedicated service.</li> <li>2. New dedicated service requirements entering the system after the preliminary 4-day advance schedule is established but before the non-dedicated user service is completed.</li> <li>3. A major schedule revision due to updated state vectors causing a re-planning of equipment allocations.</li> </ol> <p>The actual risk of being bumped is dependent on the level of equipment installed versus the size of the non-dedicated user community relative to the size of the dedicated user community (see attached). Beamforming and demodulating hardware and associated spares will be installed based on the usage characteristics of the dedicated user community. Based on our initial customer base, we would expect that hardware to be 50-66% committed to ongoing dedicated user services. A small number of non-dedicated users would have a reasonable probability of service (see attached). In general, there will be no guarantee that non-dedicated customers may be preempted at any time before or during service. A typical non-dedicated customer would only utilize DAS to receive non-critical payload data, not spacecraft telemetry.</p> <p>Users will be scheduled and rescheduled based on a SIC-based processing list. In case of equipment shortage or failure, services will be re-stored in accordance with the processing list.</p>			
<b>8. Response By:</b> Walter W. Kearns		<b>Organization:</b> ITT-AES, DAS PM	<b>Telephone:</b> (703)498-8113
		<b>Date Prepared:</b> 03/30/01	
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/17/01
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<b>11: Comments:</b>			
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		<b>Chairperson</b>	<b>Date</b>



**RFA 453/023-08**  
**Additional Comments**

Assuming DAS is equipped to the level needed to support the dedicated users plus associated spares, the initial needed equipment, its usage and quantity available for non-dedicated users is shown below:

<b>Dedicated User</b>	<b>24x7?</b>	<b>All TDRS in View?</b>	<b># TDRS Used</b>	<b># IBU Avail</b>	<b># IBU Used</b>	<b># DMU Avail</b>	<b># DMU Used</b>
1	Y	N	1	3	1	2	1
2	Y	N	1	3	1	2	1
3	Y	Y	3 *	3	3	3	3
<b>Total</b>				<b>9</b>	<b>5</b>	<b>7</b>	<b>5</b>
<b>Available for nondedicated customers</b>				<b>4</b>		<b>2</b>	

# Used is simultaneous use.

\* Worst case; normally in view of two TDRS using only 2 IBUs and 2 DMUs. This equipment has a ~0.9999 operational availability with a MTBF of 30 minutes.

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-09	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
Identify impact of loss of RAID or RAID data (DASCON) and contingency phase for operation and time to restore/repair. Discussions included reloading RAID from backup with backup being done once per day. Include possibilities of software corruption, h/w loss (ie: motherboard), and possibilities of restoring from SWSI stored requests.			
<b>6. Originator:</b> Ted Ackerson		<b>Organization:</b> GSFC Code 303	<b>Telephone:</b> (301)286-4247
<p><b>7. Response:</b> The DASCON software will check the RAID drive every 5 minutes, and an Alert Message will be displayed if a RAID drive goes down. The Dell Power Edge 2400 chassis supports two RAID containers: one is used for the operating system, and the other is used for the DASCON software and the database. The RAID drives in each container are mirrored, and data is simultaneously written to both drives. Therefore, a disk drive in one container can go down (or a drive in one container can be removed) without impacting DASCON operations. If a drive does go bad, then it can be replaced using a hot-swap procedure. Data will then be written to both drives simultaneously, as before. Also, data will be copied from the mirrored disk to the new disk to maintain data concurrency. All of this is achieved via a simple command entered at the operating system. It is not known at this time how long it will take for the new drive to be synchronized, but it is anticipated to be less than 1 hour. This will be benchmarked as part of test program.</p> <p>If both disk drives go bad in one container, then that container would have to be reformatted (or both disk drives replaced) and data would be restored from the back up media. During this time, DASCON operations will be unavailable for up to 30 minutes. The exact time will be confirmed during testing. When DASCON is brought back up again its status (e.g. schedule) will reflect what was last recorded on the archive media and inputs from SWSI.</p> <p>The specific possibility of software corruption is too small to merit analysis based on the system's configuration. All hardware loss recovery scenarios are within a 30-minute timeline explained in the Reliability/Maintainability/Availability Analysis Report. In the other specific example, DASCON operations would not be possible for up to 30 minutes while the motherboard was replaced. Specific sparing types and levels will be identified at an upcoming ILSP conference.</p> <p>SWSI will allow users to select previously submitted schedule requests for retransmission to DAS. This will be provided via a "Resubmit" button on the Schedule Requests panel. There is no allowance for bulk selection and retransmission, so requests must be resubmitted one at a time. CSOC operations procedures will identify how customers are notified of software/hardware failures and the specific steps needed to follow to restore operations.</p>			
<b>8. Response By:</b> Walter W. Kearns		<b>Organization:</b> ITT-AES, DAS PM	<b>Telephone:</b> (703)498-8113
			<b>Date Prepared:</b> 03/30/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/17/01
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		<hr/> Chairperson	<hr/> Date

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-10	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
<p>PN Code lock and decoder lock should be reported separately. It's critical to be able to detect if PN lock occurred and decoder lock didn't. The User would know that their transmitter came on. The failure of decoder lock would be either a s/c or ground misconfiguration or failure.</p> <p>P.S. – Might as well include frame sync lock too.</p>			
<b>6. Originator:</b> Dave Israel		<b>Organization:</b> GSFC Code 567	<b>Telephone:</b> (301)286-5294
<b>7. Response:</b> <p>DAS leverages from an existing design that incorporates an existing integrated receiver. DAS receivers do not differentiate PN lock and decoder lock. If the receiver is not in lock, then the decoder is by definition not in lock. If the receiver is in lock, then the decoder may <i>or may not be</i> in lock (for example, the recovered symbols could be improperly encoded or all 1s). Frame sync status is available from the PTP and will be reported in the UPD if frame processing is performed.</p> <p>The implementation contractor's ROM estimate for the design modifications and documentation updates to be \$20K to implement the desired change. Changes will also be needed to the SWSI interface, which would also cost several thousand dollars. Overall, the system wide implementation of the separate lock reporting function(s) could be a total of ~\$40K.</p> <p>We are currently projecting overruns on both SWSI and DAS - DAS program contingency has been liened to incorporate these overruns, but remaining contingency does not permit the lien of another \$40K for this function. The overruns do not include the recently directed cut of \$300K from FY01/FY02 product budget, which serves to compound the cost pressure on DAS.</p> <p>We feel the cost/schedule impacts of reporting PN Code lock and decoder lock separately outweigh risks to DAS customers. This capability could be explored as a post-deployment upgrade to DAS.</p>			
<b>8. Response By:</b> Thomas A. Gitlin		<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301) 268-9257
<b>8. Response By:</b> Thomas A. Gitlin			<b>Date Prepared:</b> 04/09/01
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REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-11	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
Two TCP/IP Users for single DAS service. How will DAS/NISN support two TCP socket connections from a single DAS receiver channel?			
<b>6. Originator:</b> R. Elwood		<b>Organization:</b> FHA/451	<b>Telephone:</b> (301)286-6492
<b>7. Response:</b> As currently implemented in SWSI, DAS will not support two TCP/IP Users for a single DAS service. The DAS/SWSI ICD allows only a single destination IP address and TCP port number to be entered for each DAS service request message.  A Customer or project would have to submit a NISN Service Request (NSR) for special engineering to deploy a "fanout" capability that receives a single TCP stream from DAS and serves that to "n" TCP destinations in the open networks. A NISN service manager from Code 290 or a CSOC/NISN CSR may submit NSRs.			
<b>8. Response By:</b> Chris Spinolo		<b>Organization:</b> GSFC Code 241	<b>Telephone:</b> (301)286-7552
		<b>Date Prepared:</b> 04/03/01	
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/09/01
<b>10. Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
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REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-12	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
DAS needs a definition of it's orbital propagator accuracy to allow customers to determine how often state vectors will require updates (EPOCH Times).			
<b>6. Originator:</b> R. Elwood		<b>Organization:</b> FHA/451	<b>Telephone:</b> 6-6492
<b>7. Response:</b> <p>The TGBFS propagator accuracy is inadequate for DAS scheduling. For orbits not less than 350 km, the J2 model can support propagation for 24-hour periods without requiring customer state vector updates. However, 96-hour propagation computations are not accurate enough for scheduling. J2 errors exceed 850 km over 96 hour periods. For orbits at 500 km or higher, the J2 model is adequate to support propagations of 96 hours with an error of less than 60 km over that period of time.</p> <p>Analysis is proceeding to identify a more accurate propagator model for scheduling while continuing to utilize the J2 model in DCON and ICON. The DASCON propagator model will be provided from an existing GIPSY/OASIS propagation model, which includes models for other effects such as atmospheric drag, solar radiation, and sun/moon effects. A higher level of fidelity for earth oblateness will also be used in the model.</p> <p>DAS will provide sufficient details of the propagator model actually incorporated into the DASCON Scheduler to permit any user to determine how often its state vector will require updates to maintain a 50 km accuracy.</p>			
<b>8. Response By:</b> Walter W. Kearns		<b>Organization:</b> ITT-AES, DAS PM	<b>Telephone:</b> (703)498-8113
			<b>Date Prepared:</b> 03/30/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/09/01
<b>10: Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11: Comments:</b>			
		Original signed	05/22/01
		<hr/> Chairperson	<hr/> Date

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review	<b>2. RFA No.</b> 453/023-13	<b>3. Review Date</b> 02/22/01	
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)  There should be a way for the SWSI client to save active schedule summary panel information to a file. This would be used in the MOC to fold the TDRS schedule information into the mission planning software. The client should also be capable of saving the "DAS TDRS Handovers" information to a file. Some spacecraft need to know when to transition between each TDRS.			
<b>6. Originator:</b> Dustin Aldridge	<b>Organization:</b> SWIFT/Omitron	<b>Telephone:</b> (301)474-1700 x 656	
<b>7. Response:</b> A menu option or button will be provided on the Active Schedule Summary panel to save all active events to a CSV-formatted file. This information will be at the event level only and will not include service and parameter details. A similar option will be provided on the DAS TDRS Handovers panel.			
<b>8. Response By:</b> Tom Sardella	<b>Organization:</b> Code 451	<b>Telephone:</b> (301)286-7686	<b>Date Prepared:</b> 03/14/01
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b> 04/13/01
<b>10: Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11: Comments:</b>			
		Original signed	05/22/01
		<b>Chairperson</b>	<b>Date</b>

REQUEST FOR ACTION (RFA)			
<b>1. Review Type</b> Peer Review		<b>2. RFA No.</b> 453/023-14	<b>3. Review Date</b> 02/22/01
<b>4. Title:</b> Critical Design Review (CDR) for the Demand Access System (DAS)			
Many MOCs will have autonomy monitoring ops for most of the time. These MOC will need information on status on the service, particularly lock status. Current design docs doesn't provide an electronic message (such as defining an alert) that would allow autonomous ops.			
<b>6. Originator:</b> Steve Thompkins		<b>Organization:</b> GSFC Code 581	<b>Telephone:</b> (301)286-6791
<b>7. Response:</b> The DAS design does not preclude autonomous operations by a user MOC. DAS alerts are freeform text messages provided to SWSI are processed such that a MOC operator may retrieve them at a later date.  Refer to the draft DAS/SWSI ICD (Document number 453-ICD-DAS/SWSI) now posted on the DAS web site ( <a href="http://stelwscpo.gsfc.nasa.gov/Das/DAS_Current_ICDs.htm">http://stelwscpo.gsfc.nasa.gov/Das/DAS_Current_ICDs.htm</a> ) for electronic service status and alarms that could be used to enhance autonomous operations.			
<b>8. Response By:</b> Thomas A. Gitlin		<b>Organization:</b> GSFC Code 453	<b>Telephone:</b> (301) 286-9257
<b>8. Response By:</b>		<b>Date Prepared:</b> 04/24/01	
<b>9. Originator Contacted:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			<b>Date:</b>
<b>10: Disposition:</b> <input type="checkbox"/> Deferred <input checked="" type="checkbox"/> Closed			
<b>11: Comments:</b>			
		Original signed	05/22/01
		Chairperson	Date

